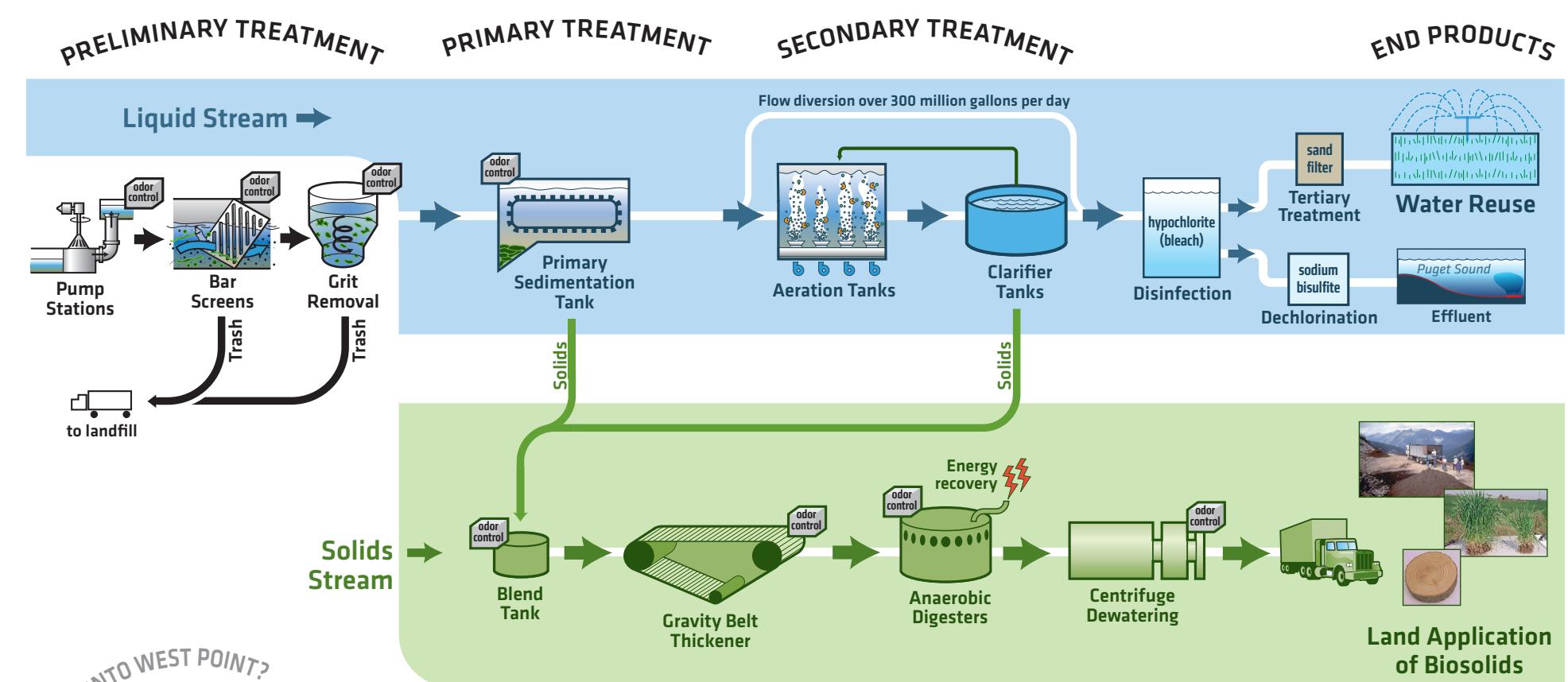
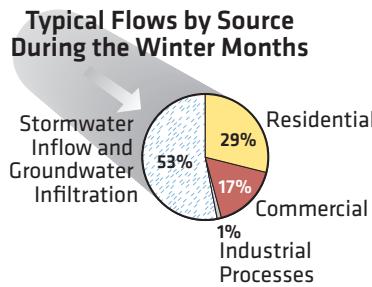


West Point Treatment Process



WHAT'S COMING INTO WEST POINT?



WEST POINT FACTS

- Design average wet weather flow:** 133 million gallons per day
- Design peak secondary capacity:** 300 million gallons per day
- Design maximum capacity:** 440 million gallons per day during peak storms
- Outfall pipe:** 3,600 feet long, 240 feet deep, 600-foot diffuser

- Reclaimed water produced:** up to 220 million gallons per year
- Biosolids produced:** about 50,000 wet tons per year
- Digester gas generated:** 550 million cubic feet per year
- Average dry weather flow:** 100 million gallons per day
- Average wet weather flow:** 120 million gallons per day



Department of
Natural Resources and Parks
Wastewater Treatment Division

West Point Treatment Plant

Treatment Processes

1. Preliminary Treatment: Trash and dirt removal

Bar screens filter trash that enters the treatment plant. All trash removed is trucked to a landfill.

The water then enters a pre-aeration tank where air is added to help separate the dirt, rocks, sand and gravel (grit) out of the water. The removed grit is trucked to a landfill.

2. Primary Treatment: Settling out organic solids

Water enters primary sedimentation tanks and slows down. Oils and grease float to the surface and heavy organics (human waste, food waste) settle to the bottom. Scrapers remove the solids from the surface and bottom of the tank and those materials are piped to the solids treatment system.

This process removes approximately 60 percent of the organic solid waste.

3. Secondary Treatment: Biological treatment, bacteria and oxygen

Water is pumped into aeration tanks: oxygen and bacteria (return activated sludge from later in the process) are added to the 60 percent clean water. The oxygen activates the bacteria causing them to reproduce and eat suspended and dissolved organic waste left in the water.

This mixture of air, bacteria and 60 percent clean water will enter a secondary clarifier. The bacteria/biomass will settle to the bottom of the tank and most (90 percent) will be returned to the aeration tanks to become the next activated bacteria.

The remaining 10 percent will be sent to solids treatment.

Water leaving the clarifier has 85-95% less solids and biological oxygen demand (BOD) than when it entered the plant.

4. Disinfection: Destroying pathogens

Finally, the water is disinfected using hypochlorite (a strong bleach) and then the hypochlorite is neutralized

Resource Recovery: Reclaimed Water

After disinfection some water will be further treated using advanced filtration and disinfection to produce water that is approx. 99.9 percent cleaner than when it came into the plant, and clean enough to meet Class A Reclaimed Water standards for non-potable uses at the plant.

Approximately 100 million gallons of sewage (up to 440 million gallons during heavy rain) come through West Point everyday, carrying trash, dirt, organic waste, pathogens, and household chemicals from homes and businesses in the Seattle and North King County areas.

Pretreatment:

Industries, factories, breweries and other businesses are required to pretreat their wastewater before sending it to the treatment plant. This protects the biological treatment processes and helps ensure the quality of the effluent entering Puget Sound, and the reclaimed water and Loop® biosolids that are returned to our communities and environment.

5. Solids Treatment: Biological treatment and dewatering

The organic solids removed during primary and secondary treatment are (1) blended together (2) thickened (3) Digested—biologically broken down (4) dewatered and converted into Loop biosolids.

The Digestion process grows anaerobic bacteria in a hot (98°F), no-oxygen environment to break down the organic waste. As the bacteria decompose the waste is then converted into nutrients and biogas.

The dewatering processes use polymer to help solids coagulate and dewater quickly making treatment and transportation more effective.

Resource Recovery: Loop biosolids (nutrients)

The solids treatment process produces both nutrients and biogas from the month long decomposition of organic waste. The nutrient-rich biosolids product is called Loop and is sold to farms and forests as an alternative to chemical fertilizers. It can also be composted further to create Groco, a nutrient-rich compost product for gardens and landscapes.

Resource Recovery: Energy

Biogas is recycled onsite as (1) fuel to power the influent pumps (2) fuel for a boiler system to produce heat used around the facility (3) fuel for a cogeneration system and is converted into electricity and heat used on site.

You can help:

- Flush only human waste and toilet paper. Other ‘flushable’ products are NOT good for sewer systems.
- Use simple, biodegradable personal and cleaning products. Find recipes to make your own!
- Control rain water: stormwater is big problem for water quality. Install a rain garden, rain barrels and/or cisterns. Find simple ways to prevent runoff pollution.